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Obesity Prevention in Children Linked to Healthy Diet, Activity

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One in every four children in the United States is obese, and the prevalence of this problem is expected to increase. The serious health consequences of obesity make this trend particularly alarming.

Weight problems that begin early in life often persist into adulthood, thereby increasing the risk of disorders associated with obesity later in life. Some research links obesity in childhood with type II diabetes in adolescence and adulthood.

OBESITY AND DISEASE

With support from USDA's National Research Initiative (NRI) Competitive Grants Program and the National Institutes of Health National Institute of Child Health and Development (NICHD), scientists at the University of Alabama at Birmingham (UAB) are tracking the relationship between obesity and early risk of associated diseases among children.

In a 5-year study, researchers are monitoring ongoing changes in body fat, blood lipids, insulin sensitivity, blood pressure, sex hormones, exercise, and diet among some 150 volunteer Caucasian and African-American children. The children's pre-puberty ages (6 to 12 years) make them ideal candidates for the study because adolescent growth is associated with dramatic changes in body composition.

VISCERAL FAT

A major goal of the investigation is to determine the role of visceral fat – body fat surrounding the internal organs – in children's health. The scientists are speculating that how the fat is distributed

RESEARCHERS MEASURE THE
FITNESS LEVEL OF A YOUNG
SUBJECT ON A LABORATORY
TREADMILL.



MIKE STRAWN

Visceral fat is the major factor in obesity-related disease risk.

around the body may have more important health implications than total body fat. Indeed, visceral fat is thought to be the major factor in obesity-related disease risk.

How fat is deposited in the body varies considerably among individuals. To measure body composition and fat deposits, the researchers are using state-of-the-art computed tomography (CT) scans. The illustration below shows an image of a "slice" through the abdomen of one of the subjects. The light portions of the scan reveal how body fat is deposited in this individual.

LIFESTYLE FACTORS

Another major goal of the study is to identify both modifiable factors (such as diet and exercise) and non-modifiable factors (such as genetic makeup, gender, and ethnicity) that may contribute to obesity.

Preliminary findings suggest that obesity prevention should be geared toward modifiable factors. Effective intervention strategies to reduce obesity in children are likely to be most effective when they

promote healthy eating and increased physical activity.

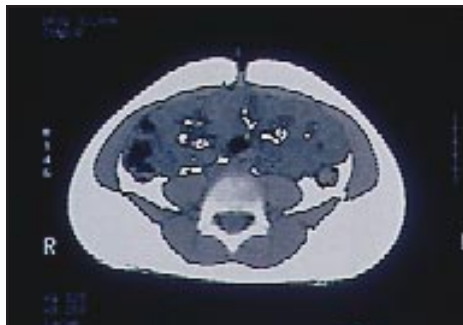
Data from the study suggest many practical applications, including identifying subgroups at risk of obesity and developing clinical guidelines for assessing the risk of cardiovascular and metabolic diseases among overweight children. However, the most innovative applications may involve the use of multimedia-based educational efforts designed to prevent childhood obesity.

IMPACT EDUCATION

The study data currently are being used to develop a school-based health education program using interactive multimedia techniques. Also supported by the NRI and the NICHD, a novel health teaching tool called IMPACT (Interactive Multimedia for the Promotion of Nutrition and Physical Activity in Children) uses individual, classroom, and home educational modules to encourage positive changes in children's eating and exercise habits.

The projects undertaken by the UAB obesity researchers are contributing to mounting evidence that nutrition, physical activity, and lifestyle play central roles in long-term health. Clearly, the best way for society to address the widespread health problem of obesity is through a commitment to public health education that begins in childhood.

THE WHITE AREAS OF THIS CT SCAN SHOW THE ABDOMINAL FAT DEPOSITS IN A 7-YEAR-OLD MALE. THE VISCERAL FAT DEEP INSIDE THE BODY CAVITY MAY INVOLVE GREATER HEALTH RISKS THAN THE SUBCUTANEOUS FAT.



The research reported in this factsheet was sponsored by the Improving Human Nutrition for Optimal Health Program of the Nutrition, Food Safety, and Health Division of the National Research Initiative Competitive Grants Program. To be placed on the mailing list for this publication or to receive additional information, please contact the NRI (202/401-5022 or NRICGP@reeusda.gov). The factsheet also is accessible via the NRI section of the Cooperative State Research, Education, and Extension Service website (<http://www.reeusda.gov/nri>).

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